State of Oregon
Department of Environmental Quality **Memorandum**

Date: **August 24, 2016**

To: **Eva DeMaria, US EPA**

Through: **Scott Manzano, DEQ Cleanup Section Manager**

From: **Alex Liverman, Portland Harbor Stormwater Coordinator**

Subject: **Draft Source Control Decision**
Fred Devine Diving and Salvage Company
ECSI #2365

1.0 Introduction

This memorandum presents the basis for the Oregon Department of Environmental Quality source control decision for the Fred Devine Diving and Salvage Company site, located at 6211 N Ensign St, Portland, Oregon.

Fred Devine conducted a Source Control Evaluation for the stormwater pathway at the site in accordance with the 2005 *EPA/DEQ Portland Harbor Joint Source Control Strategy*, also known as the JSCS, under a November 2006 Voluntary Cleanup Agreement between Fred Devine and the DEQ.

DEQ concludes from review of the Preliminary Assessment reports, Stormwater Source Control Evaluation Report and supplement that Fred Devine has controlled upland sources of contamination from current and past operations such that potential contaminant transport pathways at the site do not pose a significant current or future threat to the Swan Island Lagoon section of the Willamette River.

2.0 Site Description and History

The site is located in the Mocks Bottom section of the Portland Harbor study area uplands adjacent to the Swan Island Lagoon reach of the Willamette River. This area was originally marshland that was filled by material dredged from the river beginning in the 1930s and continuing until 1972 (Evergreen 2001).

The site is currently owned and operated as The Marine Salvage Consortium, Inc (dba Fred Devine Diving & Salvage Co). As depicted in Figure 1, the 5.74-acre property is located on the east bank of the Swan Island Lagoon area of the Willamette River at approximately river mile 8.4, across from the Vigor Shipyard. Surrounding properties include United Parcel Service inland and Port of Portland Navigation facility and US Navy Reserve facility on either side along the bank.

As shown in Figure 2, the majority of the site is covered pavement or roofs with a small gravel storage area at the west end and gangway to an overwater dock along the site's bank. The two-story office building was the first development in 1973, the warehouse was built in 1976, the dock was built in 1984 and the shop was added to the west side of the warehouse in 1995 (Evergreen 2001). As shown in photos on Figure 3, the riverbank has a relatively gentle slope down to the water and is stabilized by riprap along the base of the bank and sparse vegetation above.

Activities on the site are largely administrative, beginning in 1973 when the office building was constructed. Portions of the site have been leased to sub-tenants over the years, also for administrative activities. Personnel vehicle parking occurs on asphalt lots. Storage and maintenance of boats and salvage related gear/equipment occurs in the warehouse/shop, including storage and use of lubricants and a small paint room that is plumbed to an isolated oil/water separator for discharge to the sanitary sewer. Some storage of vehicles, trailers, scaffolding, pipes and similar materials occurs on gravel or paved surfaces outside. The dock is used for vessel moorage and infrequent fueling using a small tanker truck that runs a line from the dock to the vessels.

As depicted on Figure 2, the stormwater pathway from the site is a complete, but minimal migration pathway. Six catch basins fitted with filter inserts drain to a single line to the City of Portland stormwater conveyance, which comingles with stormwater from other property contributions and eventually discharges to the Willamette River at City of Portland Outfall M-1. Outfall M-1 discharges into sediment area of potential concern 17 (sediment decision unit SwanIs). Rain falling on the gravel area infiltrates there.

3.0 Regulatory History

3.1 Stormwater

Operations at the site do not fall into an industrial classification necessitating coverage under DEQ's NPDES 1200-Z industrial stormwater general permit. While not required, a stormwater pollution control plan is implemented at the site. Elements of the plan include employee and tenant education, spill response training, signage, exposure and oil/grease reduction practices and regular maintenance of catch basins and filter inserts.

3.2 Underground Storage Tanks

Two 2,000-gallon gasoline tanks installed in 1975 and one 4,000-gallon gasoline tank installed in 1979 were removed from the site in 1993 and tank decommissioning forms indicate that they tanks had not leaked.

3.3 Hazardous Substance Releases

Two minor environmental releases at the site were reported to U.S. Environmental Protection Agency's Emergency Response Notification System. In 1995, some oil-stained absorbent pads fell into the lagoon from a torn garbage bag on the dock. The materials were quickly retrieved and a small sheen was generated and quickly dispersed. In 1998, a pallet of paint buckets fell from a crane onto the deck of a barge and a small amount of paint entered the water. No other releases have been documented at the site.

4.0 Source Control Evaluation

Because the site is located within the uplands draining to the Portland Harbor Superfund study area, upland source control investigations were guided by the 2005 EPA/DEQ Joint Source Control Strategy. The objective of a source control evaluation is to determine whether existing and potential sources of contamination at the site have been identified and if additional characterization or source control measures are needed. As discussed below, DEQ determined that the overwater, bank erosion and groundwater pathways were not complete or significant and only the stormwater pathway was determined to be potentially complete.

In 1999, DEQ's Site Assessment Program evaluated the site to identify likely sources of upland contamination threatening the Willamette River in Portland Harbor. Based on data from the May 1998 Weston Study of Portland Harbor sediment and 1998 Port of Portland sediment sampling in the Lagoon,

which showed elevated concentrations of phthalates and PAHs near the Fred Devine Dock, DEQ determined that the site was a high priority for additional investigation.

In response, a Phase I Site Assessment was conducted at the site and a report submitted to DEQ in 2001. The report detailed the history of the site and found little evidence of past or present use or release of hazardous materials on the site. Four soil samples below a gravel horizon from unpaved areas of the site were collected and analyzed as part of an Expanded Preliminary Assessment (Evergreen, 2002). Results detected arsenic (2.1 to 17.9 mg/kg), cadmium (non-detect to 1.45 mg/kg), copper (19.7 to 98.8 mg/kg), lead (3.59 to 57.6 mg/kg) and zinc (47.7 to 288 mg/kg) in the general range of background concentrations (DEQ 2013). Sample SS#1, located farthest away from the river on the eastern side of the site, had the highest metals detections at approximately two times background for arsenic, cadmium, and zinc, and three times background for copper. Bis(2-ethylhexyl)phthalate was also detected at SS#1 at 81.7 ug/kg, well below the JSCS SLV of 330 ug/kg, and was the only semi-volatile organic compound detected in just one sample. While these local soil impacts around SS#1 may be related to past site activities associated with an open sided shed adjacent to the sample location, the existing overlying gravel layer limits the potential for stormwater transport of this soil.

Due to the lack of history of hazardous material use or significant releases on site and the stability of the bank, as shown in photos on Figure 3, DEQ determined that erosion of contaminants from the banks was not a complete pathway.

Also due to the lack of history of hazardous material use or significant releases on site, as well as the history of area land development through placement of dredged fill material, assumption of groundwater occurring under the fill at 15 to 20 feet below ground surface, concurrent development of stormwater systems conveying area runoff to the river, and uncontaminated surface soils (where exposed), DEQ determined that impacts to groundwater under the site were unlikely and did not pursue investigation of the groundwater pathway.

While minor spills from the dock had occurred and could result from intermittent fueling, DEQ determined that implementation of operational practices and spill response planning would be sufficient to control this infrequent potential pathway and did not require further investigation or controls for the overwater pathway.

Based on the results of Phase I and Expanded Preliminary Assessments, DEQ concluded that the site was no longer a high priority site and requested that the site investigate the stormwater pathway. Fred Devine entered into a voluntary agreement to do so in 2006.

4.1 Stormwater Source Control Investigations

When stormwater presents as a potential pathway to mobilize contamination from the site to the river, these determinations generally rest upon demonstrating that site-related information provides sufficient support to make the following findings:

1. Existing and potential facility-related contaminant sources have been identified and characterized.

2. Contaminant sources were removed or are being controlled to the extent feasible.

3. Performance monitoring conducted after source control measures were implemented supports the conclusion that the measures are effective.

4. Adequate measures are in place to ensure source control and good stormwater management measures occur in the future (DEQ 2010).

As detailed in the Evren Northwest source control evaluation reports, multiple instances of investigation were undertaken at the site.

4.1.1 Catch Basin Sampling
Sediment in catch basins 1, 3, 4 and 6 was sampled in 2002, during the Preliminary Assessment. This data is presented in Table 1 and shows the highest detected concentrations exceeding JSCS screening level values for a few individual polycyclic aromatic hydrocarbons (anthracene 16,700 ug/kg, fluoranthene 18,700 ug/kg, fluorene 6,730 ug/kg, phenanthrene 20,000 ug/kg and pyrene 12,500 ug/kg) and bis(2-ethylhexyl)phthalate (172,000 ug/kg) in solids from one or more catch basin. The source of the phthalates was traced to Styrofoam packing peanuts blown onto the site from the UPS facility, as detailed in a 2008 technical memorandum on Wind-Blown Packaging Materials as Probable Source of Phthalates in Stormwater (Evren 2008a), and catch basins were subsequently cleaned in November of 2002 (Evergreen 2003) and regularly thereafter.

Catch basin inspection observations from 2007 and 2008 indicate that very little sediment accumulates in all six catch basins (approximately 0 to 5 inches in 31 to 38 inch sumps) (Evren 2008b). Two composite samples from catch basins (1, 2 and 3) and (4, 5 and 6) were collected in 2010 showing lower concentrations of previously detected individual PAHs and some additional detections of individual PAHs (Table 1), but phthalates were not analyzed.

4.1.2 Stormwater Sampling
Stormwater was sampled in 2007, 2008 and 2009 collected from a manhole between catch basins 5 and 6. These data are presented in Table 2. The highest detected concentrations of some metals, some individual PAHs and bis(2-ethylhexyl)phthalate were detected in exceedance of Portland Harbor preliminary remediation goals (copper 74.1 ug/L, zinc 1520 ug/L, benzo(a)anthracene 0.14 ug/L, chrysene 0.3 ug/L, benzo(b)fluoranthene 0.26 ug/L, benzo(k)fluoranthene 0.081 ug/L, benzo(a)pyrene 0.15 ug/L, ideno(1,2,3-cd)pyrene 0/15 ug/L and bis(2-ethylhexyl)phthalate 2.9 ug/L) or JSCS SLVs (cadmium 1.34 ug/L and lead 25.4 ug/L).

4.3 Lines of Evidence Evaluation
Stormwater from the site discharges to the Lagoon in an area where EPA's sediment remedy will be actively implemented. Area of potential concern 17 showed elevated concentrations of arsenic, cadmium, copper, mercury, silver, tributyltin, zinc, PAHs, dibutyphthalate, phenol, PCBs, delta-HCCH and dieldrin. Of these, EPA only carried forward arsenic, copper, zinc, tributyltin, PCBs, and the individual PAHs: naphthalene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene with PRGs for cleanup of sediment decision unit SwanIs in the June 2016 version of the Portland Harbor Feasibility Study and Proposed Plan for remedial action.

Stormwater and catch basin solids sampling results that exceeded the JSCS initial upland source control screening level values and applicable background concentrations were compared to DEQ charts from *Appendix E: Tools for Evaluating Stormwater Data*, which was updated 2015. This tool was created by using contaminant concentration data from many of the stormwater and stormwater solids samples collected at Portland Harbor-area heavy industrial sites. This data was used to create a series of charts that plot rank-order samples against contaminant concentrations, and are used to identify contaminant concentrations in samples that are atypically elevated. Concentrations falling within the upper/steeper portion of the curve are an indication that uncontrolled contaminant sources may be present at the site and that additional evaluation or source control measures may be needed. Concentrations that fall on the

lower/flatter portion of the curve suggest that stormwater is not being unusually impacted by contaminants at the site, and while concentrations may exceed the risk-based SLVs or stormwater PRGs, they are within the range found in stormwater or solids from active industrial sites in Portland Harbor.

While some catch basin solids samples had detections of bis(2-ethylhexyl)phthalate and a few individual PAHs exceeding JSCS SLVs and at the high end of the rank-order curves, concentrations of these contaminants in stormwater were low. In addition, very little sediment accumulates in catch basins, which are equipped with filter inserts and are regularly maintained, such that catch basin solids are unlikely to be mobilized to the river. This is further supported by three of the four 2007-2008 measurements of total suspended solids (ranging from 16 to 69 mg/L) falling below the flat portion of the rank-order curve, with one falling in the low knee of the curve.

While some metals, individual PAHs and bis(2-ethylhexyl)phthalate were detected in stormwater exceeding Portland Harbor PRGs or JSCS SLVs, nearly all detections were below the flat part of the rank-order curves for those metals, bis(2-ethylhexyl)phthalate or total PAHs. One sample in 2007 had total PAHs in the low knee of the curve and one sample in 2009 had zinc in the knee of the curve.

In summary:
1) No significant releases have been documented at the site and no industrial operations have occurred on site. As such, the potential for contaminants to be present in amounts of concern for mobilization to the river is low.
2) Stormwater generated on the 5.74 acres site is minimal and conveyed in a single line from six catch basins to City Outfall M-1 into the Swan Island Lagoon.
3) Very little sediment accumulates in catch basins, which are regularly maintained and equipped with filter inserts. Supported by low TSS measurements, sediment does not discharge in significant amounts from the site in stormwater.
4) All detected contaminants in stormwater discharge were measured at concentrations on the low end of typical industrial discharges, including zinc and the individual PAHs which have PRGs relevant to EPA's sediment cleanup in the Lagoon.
5) Adequate stormwater source control measures are in place and maintained at the site.

4.4 Source Control Decision

Based on review of the file, DEQ concludes that this upland site is adequately characterized to support a source control decision and source control measures are not warranted. The property does not appear to be a current or reasonably likely future source of contamination to the Willamette River, provided that releases continue to be prevented and infiltration of the majority of site stormwater continues.

5.0 References

DEQ. 2009 (updated 2010 and 2015). Guidance for Evaluating the Stormwater Pathway at Upland Sites. http://www.deq.state.or.us/lq/cu/stmwtrguidance.htm.

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